

## WHAT IS CLAIMED IS:

1. A two-way DC-DC converter comprising: a terminal for a low-voltage side; a terminal for a high-voltage side; a transformer including a winding wire for the low-voltage side and a winding wire for the high-voltage side; a switching section for the low-voltage side inserted between the terminal for the low-voltage side and the winding wire for the low-voltage side; a switching section for the high-voltage side inserted between the terminal for the high-voltage side and the winding wire for the high-voltage side; a rectifying element for the low-voltage side connected in parallel with switching elements in the switching section for the low-voltage side; a rectifying element for the high-voltage side connected in parallel with switching elements in the switching section for the high-voltage side; and a control circuit which controls switching elements in the switching section for the low-voltage side and switching elements in the switching section for the high-voltage side, wherein

an LC resonant circuit is provided between the winding wire for the high-voltage side and the switching section for the higher voltage side, or between the winding wire for the low-voltage side and the switching section for the lower voltage side.

2. The two-way DC-DC converter according to claim 1, wherein the LC resonant circuit is provided between the winding wire for the high-voltage side and the switching section for the higher voltage side.

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3. The two-way DC-DC converter according to claim 1, wherein both of the switching section for the lower voltage side and the  
10 switching section for the higher voltage side have a configuration in which four switching elements are bridged.